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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/806,079

03/22/2004

Yoji Taniguchi

0828.70119

1387

7590

05/18/2005

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EXAMINER

NGUYEN, THANH NHAN P

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/806,079 | Applicant(s) TANIGUCHI ET AL. | |
| | Examiner (Nancy) Thanh-Nhan P. Nguyen | Art Unit 2871 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>3/22/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

Claim 2 is objected to because of the following informalities:

Claim 2 currently read as "... the cell gap-maintaining columnar layer portions are formed in a predetermined number of recesses to fill the predetermined number of the recesses, and maintain the cell gap..." It is very confusing here when saying the cell gap layer portions are formed in the recesses to fill the recesses. It seems that the recesses are meant for the contact holes between the pixel electrodes and the drain electrodes, and the recesses (or contact holes) are filled with the hole-filling columnar layer portions while the cell gap-maintaining columnar layer portions are formed between the substrates to maintain the cell gap. Therefore, for the purpose of examination, claim 2 will be interpreted as "... the cell gap-maintaining columnar layer portions are formed to maintain the cell gap between the thin film transistor substrate and the counter substrate."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshida U.S. Patent Application Publication No. 2002/0008819.

Referring to claims 1-2, Yoshida discloses a liquid crystal panel including a thin film transistor substrate (23) formed with thin film transistors (27) for driving pixel electrodes, a counter substrate (41) provided in a manner opposed to thin film transistor substrate, and a liquid crystal layer (14) sandwiched between the thin film transistor substrate and the counter substrate; the liquid crystal panel comprising: hole-filling columnar layer portions (36) for filling recesses (34) produced by forming the pixel electrodes (32) in contact holes (34) each formed for connecting each of the thin film transistors and an associated one of the pixel electrodes to each other; and cell gap-maintaining columnar layer portions (47) for maintaining a cell gap between the thin film transistor substrate and the counter substrate, [see fig. 1].

Claim 3 is met the discussion regarding claim 1 rejection above together with figs. 3-6. Moreover, the step of forming hole-filling columnar layer portions and cell gap-maintaining columnar layer portions simultaneously is supported in paragraph [0056].

Referring to claim 4, Yoshida discloses the step of simultaneously forming hole-filling columnar layer portions for filling recesses produced by forming the pixel electrodes in contact holes each formed for connecting each of the thin film transistors and an associated one of the pixel electrodes to each other, and cell gap-maintaining columnar layer portions for maintaining a cell gap between the thin film transistor

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substrate and the counter substrate, [figs. 3-6; par. 0056], includes exposing a photosensitive resin formed on an entire surface of the thin film transistor substrate to light, to leave behind areas for forming the hole-filling columnar layer portions therein, and areas for forming the cell gap-maintaining columnar layer portions therein, for simultaneous formation of the hole-filling columnar layer portions and the cell gap-maintaining columnar layer portions, which are made of the photosensitive resin, [figs. 5-6; pars. 0055-0058].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida in view of Kurauchi et al U.S. Patent No. 5,917,572.

Referring to claim 5, Yoshida lacks discloses of the step of forming one color filter layer on the thin film transistor substrate or the counter substrate, and laminating another color filter on the one color filter layer at areas corresponding to associated ones of the areas for forming the cell gap-maintaining columnar layer portions.

Kurauchi et al discloses the step of forming one color filter layer on the counter substrate, and laminating another color filter on the one color filter layer at areas

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corresponding to associated ones of the areas for forming the cell gap-maintaining columnar layer portions, [see fig. 14], for the benefit of providing a color liquid crystal display device capable of showing a high manufacturing yield, [see col. 2, lines 34-36], as well as being feasible to provide the inexpensive liquid crystal display device exhibiting a high display performance in terms of contrast and brightness, [see col. 12, lines 43-46]. Therefore, at the time the invention was made, it would have been obvious to one ordinary skill in the art to form one color filter layer on the thin film transistor substrate or the counter substrate, and laminating another color filter on the one color filter layer at areas corresponding to associated ones of the areas for forming the cell gap-maintaining columnar layer portions for the benefit of providing a color liquid crystal display device capable of showing a high manufacturing yield as well as being feasible to provide the inexpensive liquid crystal display device exhibiting a high display performance in terms of contrast and brightness.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yoshida U.S. Patent Application Publication No. 2002/0008819 discloses a liquid crystal display comprising hole-filling columnar layer portions for filling the contact holes between the pixel electrodes and drain electrodes; and the cell gap-maintaining columnar layer portions for maintaining the cell gap between substrates.

Kurauchi et al U.S. Patent No. 5,917,572 discloses the step of forming one color filter layer on the counter substrate, and laminating another color filter on the one color filter layer at areas corresponding to associated ones of the areas for forming the cell gap-maintaining columnar layer portions.

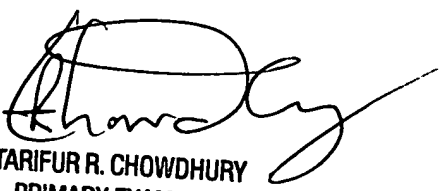
Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P. Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on M-F/9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 13, 2005

TN


TARIFUR R. CHOWDHURY
PRIMARY EXAMINER